Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte VALERIE M. FINDLAY and ANDREW KNOX

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Appeal No. 1998-1331
Application No. 08/357,626

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ON BRIEF

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Before HAIRSTON, LALL, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-8 and 11-18, which are all the claims remaining in the application.

We reverse.

BACKGROUND

The invention is directed to a touch-sensitive display apparatus which automatically adjusts calibration data upon the changing of display parameters. Claim 1 is reproduced below.

1. A touch-sensitive display apparatus comprising:

a display screen;

a display drive means connected to said display screen for displaying an image within a display area of said display screen in response to an input video signal;

a display processor connected to said display drive means for generating, in response to one or more image control signals, at least one drive control signal for configuring said display drive means to adjust a parameter of said display area such that a selected portion of said display area has a different position relative to said display screen than said selected portion of said display area when said touch-sensitive display apparatus was last calibrated;

a touch sensing means for generating a touch input signal in response to a tactile stimulus of said display screen, said touch input signal being indicative of a location of said tactile stimulus on said display screen;

a touch processor connected to said touch sensing means for converting, utilizing calibration data stored in a touch memory, said touch input signal into coordinates defining said location of said tactile stimulus on said display screen relative to features in said image displayed within said display area of said display screen;

wherein said display processor includes means for communicating correction data to said touch processor indicative of said different position of said selected portion of said display area relative to said display screen, and said touch processor includes means for automatically adjusting said calibration data stored in said touch memory to re-align said coordinates generated by said touch processor

to features of said image in response to said correction data received from said display processor.

The examiner relies on the following references:

Mussler et al. (Mussler)	4,710,758	Dec. 1, 1987
Rysavy et al. (Rysavy)	4,929,935	May 29, 1990

Claims 1-8 and 11-18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Rysavy in view of Mussler.

We refer to the Final Rejection (Paper No. 8) and the Examiner's Answer (Paper No. 15) for a statement of the examiner's position and to the Brief (Paper No. 14) and the Reply Brief (Paper No. 16) for appellants' position with respect to the claims which stand rejected.

OPINION

The examiner's statement of the rejection is set forth on pages 4 to 7 of the Answer. The references of Rysavy and Mussler are provided as evidence of obviousness of the claimed subject matter. "Mussler is provided to also teach automatic calibration." (Answer, page 5.)

Appellants argue (Brief, pages 6-7) that the references fail to show or suggest the invention including the limitations set forth in the language of claim 1: "means for communicating correction data to said touch processor indicative of said different position

of said selected portion of said display area relative to said display screen"; and "means for automatically adjusting said calibration data stored in said touch memory to re-align said coordinates generated by said touch processor to features of said image in response to said correction data." We note that the disclosed embodiment corresponding to the language is described in the specification at page 13, lines 12 through 27.

On page 4 of the Answer's statement of the rejection, the examiner refers to text at column 2, lines 9 through 13 of Mussler which describes the object of providing an "automatic touch screen calibration method." The examiner also refers to column 5, line 23 to column 6, line 54 of the reference, at the bottom of page 5 of the Answer. That portion of Mussler describes generation and use of a "coordinate translation matrix."

The "coordinate translation matrix" is used in the preferred embodiment of Mussler for translating touch screen coordinates into display coordinates. As described in particular at column 5, line 50 though column 6, line 54, a "set of ten terms" is stored during the initial calibration routine. As shown in equations 8 through 17 in column 6, each of the terms (calib(0) through calib(9)) are generated from values derived from sensing touches at points 45, 50, and 55 on the graphic display (see Fig. 4).

The examiner's findings with respect to what Mussler teaches are unclear. Although Mussler is provided to "teach automatic calibration," the final paragraph of page 5 of the Answer, for example, suggests that there is to be modification of the "automatic

calibration" taught by the reference. Columns 5 and 6 of Mussler are pointed out "for examples of various calibration values."

Mussler does not explicitly disclose any of the calibration values (calib(0) through calib(9)) changing after initial calibration. "[S]ubsequent application routines" (see column 6, lines 28-31) may use the coordinate translation matrix to generate normalized X and Y (X_N and Y_N) coordinates. The "actual display coordinates" (X_{gd} and Y_{gd}) can be generated using the normalized X and Y coordinates (see column 5, lines 39-47). Presumably, application programs could provide new or different values of calib(6) through calib(9) for generating the actual display coordinates, since these calibration values, as identified in formulas 14 through 17, are expressed in graphic display coordinates. An application program using different windows, or using a different screen resolution, might generate actual graphic display coordinates using its own offsets and scale factors.

However, even if these presumptions concerning the implicit teachings of the reference are correct, Mussler refers only to "subsequent application routines" using the coordinate translation matrix and generating normalized X and Y coordinates. Claim 1, on the other hand, requires that the touch processor includes means for automatically adjusting calibration data stored in the touch memory in response to correction data "received from [the] display processor." The examiner's position, as expressed in the paragraph bridging pages 8 and 9 of the Answer, is that new coordinates (correction data) are necessarily communicated to the controllers for the touch control screen (TCS) and

graphic display images for proper alignment. However, that does not speak to the requirement that the correction data are received "from the display processor." We do not find, nor has the examiner pointed out, any disclosure or suggestion in Mussler that the display processor provide correction data for adjusting the calibration data, as set forth in Claim 1 and described on page 13 of appellants' specification. "In operation, if the image height, width or centering setting stored in display memory 150 [Figure 1] are [sic] changed, either by manual adjustment via user control 110 or by a change in display mode issued by host computer system 180, display processor 140 is configured by microcode stored in display memory 150 to communicate change data indicative of the magnitude of the change in image parameters to touch processor 120 via bus 250." (Specification, page 13, lines 14-20.) This approach solves appellants' stated problem in requiring recalibration every time that image parameters are adjusted -- regardless of whether the source of the adjustment is the user or a "host computer" running an application program.

Since the rejection does not explain how this requirement of claim 1 is shown or suggested by the prior art, a prima facie case of obviousness has not been established. The other independent claims (11 and 15) require that the calibration data are adjusted in response to adjustment of a parameter of a display area; the requirement has not been shown to be disclosed or suggested by the prior art. The applied references fail to support the conclusion that the claimed subject matter as a whole would have been obvious to the artisan. We therefore do not sustain the section 103 rejection of claims 1-8 and 11-18.

CONCLUSION

The rejection of claims 1-8 and 11-18 is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)
PARSHOTAM S. LALL Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)

ANDREW J. DILLON
FELSMAN, BRADLEY, GUNTER & DILLON, LLP
SUITE 350, LAKEWOOD ON THE PARK
7600B NORTH CAPITAL OF TEXAS HIGHWAY
AUSTIN , TX 78731